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<p>(21) International Application Number: PCT/AU89/00379</p> <p>(22) International Filing Date: 5 September 1989 (05.09.89)</p> <p>(30) Priority data: PJ 0247 5 September 1988 (05.09.88) AU</p> <p>(71)(72) Applicants and Inventors: THOMAS, Ronald, Howard [AU/AU]; 16 Roxborough Street, Samford, QLD 4520 (AU). STOHR, Helmut [AU/AU]; 12 Coolalie Street, Alderley, QLD 4051 (AU).</p> <p>(74) Agent: PIZZEY, John, Kingston; Pizzev and Company, Level 6, 444 Queen Street, Brisbane, QLD 4000 (AU).</p> <p>(81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE, DE (European patent), DK, FI, FR (European patent).</p>	<p>GA (OAPI patent), GB, GB (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent), US.</p> <p>Published With international search report.</p>	
<p>(54) Title: SYMBOL DEFINITION APPARATUS</p> <p>(57) Abstract</p> <p>A word processor (20) for Chinese characters has a display (25) and a keyboard (22) containing eight entry keys (31 to 38), each of which represents one of the character stroke forms used in Chinese character writing. A character memory unit (24) stores the characters in the form of strings of character stroke form codes, along with the conventional stroke entry order. Entry keys (31 to 38) are pressed in the conventional stroke entry order, and characters not including strokes in the entered order are discarded by a selection process until the desired character or a small selection of characters is defined. The stroke count of a character can be used as a search criterion for the character to be entered.</p>		

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SYMBOL DEFINITION APPARATUS
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- (57) Claim

This invention relates to symbol definition apparatus.

This invention has particular but not exclusive application to the redactive processing of symbolic language characters using electronic data processing apparatus, and for illustrative purposes reference will be made to such application. However, it is to be understood that this invention could be used in other applications, such as shorthand, mathematical, musical and other non-language symbols.

1. Character definition apparatus including for the electronic information processing apparatus; said character definition apparatus including:-
character indicia entry means for the electronic information processing apparatus;
character indicia data storage means; and
character identification means for identifying characters according to the indicia content thereof.

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12. A method of entering Chinese characters into an electronic processing apparatus, said method including:-
providing character definition apparatus having Chinese character indicia entry means for the electronic information processing apparatus, character indicia data storage means and character identification means for identifying characters according to the character indicia content and order thereof; and
operating said character indicia entry means for entry of the character indicia forming a character in the indicia order defined by standard practice.

18. A method of entering Japanese characters into an electronic processing apparatus, said method including:-
providing character definition apparatus having kanji character indicia entry means for the electronic information processing apparatus, character indicia data storage means and character identification means for identifying characters according to the character indicia content and order thereof; and
operating said character indicia entry means for entry of the character indicia forming a character in the indicia order defined by standard practice.

for assembling text in Chinese language characters.

This invention has particular application to the input of Chinese characters into electronic storage, retrieval and transmittal apparatus, and for illustrative purposes reference will be made to such application.

The Chinese written language is a symbolic language, rather than an alphabetic language, and contains many thousands of symbols called characters, each of which may represent a word.

Chinese characters are formed from unique combinations of Chinese character strokes. A Chinese character stroke is a brush stroke of traditional Chinese calligraphy formed as a single unbroken line between the point where the brush touches the paper and the point where the brush is lifted from the paper. The word "stroke" as used hereinafter in this specification, means a Chinese character stroke as defined above, unless another meaning is indicated as for

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example when discussing certain prior art documents wherein the word "stroke" does not necessarily mean a Chinese character stroke as defined above.

CLAIM

Computer processing apparatus for assembling text in Chinese language characters, said computer processing apparatus including:-

a memory including character stroke data storage means which stores data relevant to Chinese character stroke-type categories, Chinese characters and the order in which character strokes of respective Chinese characters are written and complementary graphic data storage means from which data relevant to the graphic representations of each said Chinese character may be retrieved;

display means for displaying Chinese language characters retrieved from said graphic data storage means;

a keyboard having a plurality of input entry keys including character stroke-type category entry keys designated by indicating means indicative of respective ones of said Chinese character stroke-type categories and selection means for selecting one of a plurality of characters displayed by said display means;

and wherein said character stroke data storage means are searched by entering through said input entry keys search criteria including the entered Chinese character stroke-type categories and the order in which the character stroke-type categories are entered through said input entry keys, whereby upon entry of said search criteria the graphic representation of the or each Chinese character which meet

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said search criteria are retrieved from the corresponding graphic data storage means and displayed by said display means; and

said selection means being operable to select one of said retrieved graphic representations of Chinese characters whereby text in Chinese language characters may be assembled.



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- (54) Title
 APPARATUS FOR ENCODING AND DEFINING SYMBOLS AND ASSEMBLING TEXT IN
 IDEOGRAPHIC LANGUAGES
- (51)^a International Patent Classification(s)
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- (70) Nominated Person(s)
 RONALD HOWARD THOMAS
- (57) Claim

1. Character definition apparatus for an electronic information processing apparatus, said character definition apparatus including:

a storage device including:

means for storage of stroke data of character strokes, being brush strokes of traditional ideographic language calligraphy formed as a single unbroken line between the point where the brush touches the paper and the point where the brush is lifted from the paper, which stores data relevant to eight basic categories of ideographic character stroke-types, being families of the said character strokes which have common characteristics, each category of which is characterised by the size of the character stroke in the category and/or the direction(s) of forming the character stroke in the category when conventionally handwritten, one of said categories including character strokes is characterised as being a short stabbing character stroke small in size and which may extend slightly in one of several different directions, and known to Chinese literates as a *Dian* or dot represented by (10) Fig 1, and others of said categories being characterised as being larger than said small short character stroke in size and being formed when hand-written in an initial direction or

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initial and second direction of: from left to right, known as a *Heng* stroke type and also includes strokes going slightly upwards as they go from left to right known as a *Ti* stroke type represented by (12) Fig 1; from left to right and then turning downwards known as a *Hengzhe* stroke type represented by (13) Fig 1; from top to bottom, known as a *Shu* stroke type represented by (14) Fig 1; from top to bottom and then turning to the right known as a *Shuzhe* stroke type represented by (15) Fig 1; downwards and moving to the left known as a *Pie* stroke type represented by (16) Fig 1; downwards, moving to the left and then turning to the right known as a *Piedian* or *Piezhe* stroke type represented by (17) Fig 1; downwards and moving to the right known as a *Na* stroke type represented by (11) Fig 1. ; data representative of ideographic characters, and the order in which character strokes of respective ideographic characters are handwritten; and

character data storage means which stores data representative of the character image and from which can be retrieved data representative of the graphic representations of each said ideographic character;

display means for displaying a small number of ideographic characters retrieved from said character data storage means;

entry means providing a plurality of input entry means including character stroke-type category entry means designated by indicating means indicative of respective ones of said ideographic character stroke-type categories; and,

selection means for selection of one of a plurality of characters displayed by said display means; and,

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processing means programmed by means of an identification strategy to identify a character or characters within the said character stroke data storage means on entry through said entry means of identification criteria, including the entered ideographic character stroke-type categories and the order in which the character stroke-type categories are entered through said entry keys, whereby data relevant to the graphic representation of the ideographic character or of a plurality of the ideographic characters which exactly match the entered identification criteria is retrieved from the corresponding data storage means and the or each graphic representation is displayed by said display means; and

said selection means being operable to select one of said retrieved graphic representations of ideographic characters whereby text in ideographic language characters may be assembled.

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